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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,153	12/28/2001	Akira Sakawaki	Q63142	5219

7590 07/02/2003

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EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

7

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,153

Applicant(s)

SAKAWAKI ET AL.

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 25-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 12-13 are objected to because of the following informalities: “content is” is misspelled in line 3 of claim 12 and in line 3 of claim 13. Additionally, “the Ta” is misspelled in line 2 of claim 13. Appropriate correction is required.

Election/Restrictions

2. Applicant’s election of claims 1-24 and 31 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
3. Claims 25-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method and apparatus, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1-20 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The term "fine" in claims 1, 20 and 31 is a relative term that renders the claims indefinite. The term "fine" in the context of "fine crystal grains" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear from the claims or the specification what size falls within the scope of "fine."

Double Patenting

6. Claims 1-21 and 31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 09/940,853 in view of Carey et al. (US 6280813).

Claims 1-14 of Application No. 09/940,853 include all of the limitations of the presently rejected claims except for the use of plural magnetic layers.

Carey et al. disclose the use of a magnetic recording layer comprising multiple magnetic layers separated by non-magnetic coupling layers. The magnetic layers are antiferromagnetically coupled and thereby increase the thermal stability of the magnetic recording medium (col. 2, lines 20-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to add additional magnetic layers separated by non-magnetic coupling layers to the structure claimed in 09/940,853 in order to improve the thermal stability of the recording medium as suggested by Carey et al.

This is a provisional obviousness-type double patenting rejection.

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7. Claims 22-24 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 09/940,853 in view of Carey et al. (US 6280813) as applied to claims 1-21 and 31, above, and further in view of Chen et al. (US 5866227).

Claims 1-14 of Application No. 09/940,853 include all of the limitations of the presently rejected claims except for the use of an orientation determining layer containing oxygen or nitrogen.

Chen et al. teaches that it is known in the art that the use of an oxidized seedlayer significantly improves SNR in a recording medium (col. 6, lines 49-57).

It would have been obvious to one of ordinary skill in the art at the time of invention to oxidize the orientation determining layers claimed in claims 1-14 of 09/940,853 in order to improve media SNR. Furthermore, it would have been obvious to optimize the amount of oxygen added since the presence of oxygen is clearly a result effective parameter.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Akimoto et al. (US 6534204).

Akimoto et al. disclose a magnetic recording medium comprising an NiP coated substrate, an underlayer having a (200) orientation, multiple hcp magnetic layers having a (110) orientation wherein the OR of the magnetic recording structure is greater than 1 (see Fig. 1; col. 7, lines 37-39; col. 15, lines 52-64).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marinero et al. (US 5989674) in view of Carey et al. (US 6280813).

Marinero et al. disclose a magnetic recording medium having a substrate, a NiP layer plated thereon, a bcc Cr alloy underlayer having a (200) orientation, a Co alloy hcp magnetic layer, and a protective overcoat (col. 7, lines 51-57; col. 8, lines 34-37 and lines 56-59). The reference is silent with respect to the use of plural magnetic layers permitting antiferromagnetic bonding.

Carey et al. disclose the use of a magnetic recording layer comprising multiple magnetic layers separated by non-magnetic coupling layers. The magnetic layers are antiferromagnetically

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coupled and thereby increase the thermal stability of the magnetic recording medium (col. 2, lines 20-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to add additional magnetic layers separated by non-magnetic coupling layers to the structure taught by Marinero et al. in order to improve the thermal stability of the recording medium as suggested by Carey et al.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marinero et al. (US 5989674) in view of Carey et al. (US 6280813) and further in view of Chen et al. (US 5866227) or over Akimoto et al. (US 6534204) in view of Chen et al. (US 5866227).

Marinero et al. in view of Carey et al. and Akimoto et al. teach all of the limitations of the claim except for the addition of at least 1 at% nitrogen or oxygen to the NiP orientation determining layer.

Chen et al. teaches that it is known in the art that the use of an oxidized NiP layer significantly improves SNR in a recording medium (col. 6, lines 49-57).

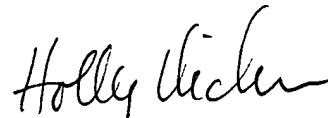
It would have been obvious to one of ordinary skill in the art at the time of invention to oxidize the NiP layers taught by Marinero et al. and Akimoto et al. in order to improve media SNR.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (703) 305-2642. The examiner can normally be reached on Monday-Friday 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Holly Rickman
Primary Examiner
Art Unit 1773

hcr
June 27, 2003